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Patent

Attorney's Docket No. 001425-104

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Masahiko TANAKA et al.

Application No.: 09/862,458

Filed: May 23, 2001

For: THIN-FILM DISPOSITION
APPARATUS

) MAIL STOP NON-FEE

) AMENDMENT

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) Group Art Unit: 1763

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) Examiner: Karla A. Moore

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) Confirmation No.: 7476

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RESPONSE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The Examiner is thanked for the careful examination of the application, and for the indication of allowable subject matter. However, in view of the remarks that follow, the Examiner is respectfully requested to reconsider and withdraw the outstanding rejections.

Claims 1, 4-5, 8-9, 11, 14-15, 17, 20-24, and 26-27 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,083,363, hereinafter Ashtiani, in view of U.S. Patent No. 6,086,677, hereinafter Umotoy.

Ashtiani relates to an apparatus and method for uniform, low damage anisotropic plasma processing. In particular, Ashtiani discloses an apparatus having a source region 12 in which a plasma is generated and a processing region 14, in which a substrate 18 is processed. The apparatus includes passages 25 for feeding a process gas into the source

region 12. In addition, the application further indicates that a feed ring 70 can be used to introduce or disperse the process gas into the processing region 14. The Ashtiani apparatus further includes an ion extraction mechanism 52 for extracting ions from the plasma in the source region 12 and delivering the ions to the processing region 14 to process a substrate. See column 6, lines 47-52. The extraction mechanism 52 is described as having a plurality of apertures formed therein for passing plasma from the source region 12 to the processing region 14.

The Examiner recognizes that Ashtiani fails to teach the dividing plate of the present invention. To overcome this deficiency, the Examiner alleges that it would have been obvious, based on the teachings of Umotoy, to use a multiple plate gas introduction apparatus with a plurality of holes "for the purpose of providing at least two gases to a processing region without commingling of the gases prior to reaching the processing region". The Examiner cites column 2, lines 39-43, as support.

However, there is no reason why one of ordinary skill in the art employing the Ashtiani apparatus would want to utilize the multiple plate gas introduction apparatus of Umotoy. Specifically, Ashtiani does not recognize a need or a desirability of providing at least two gases to the process region without commingling of the gases prior to reaching the processing region. Accordingly, even if Umotoy did provide a mechanism for providing at least two gases to a processing region without commingling of the gases prior to reaching the process region, Ashtiani does not teach or suggest an apparatus that would utilize such a feature. Accordingly, the Examiner has not provided any reason why one of ordinary skill in the art would want to modify Ashtiani as proposed by the Examiner. In

fact, modification of Ashtiani with the plate of Umotoy would render the Ashtiani device substantially unworkable. Specifically, it is an object of Ashtiani to extract the ions from the source region 12 and introduce them into the processing region 14. For that purpose, the openings in the extraction apparatus 52 are made sufficiently large so as to not interfere with the delivery of the ions from the plasma in the source region 12 to the processing region 14. The Umotoy shower head does not appear suitable for this purpose.

Accordingly, one of ordinary skill in the art would not be motivated to use the Umotoy shower head in the Ashtiani device. Such structure would possibly render the Ashtiani device unusable for its intended purpose.

Accordingly, there is no reason suggested by the Examiner as to why one of ordinary skill in the art would be motivated to modify the Ashtiani device with the teachings of Umotoy, as proposed by the Examiner.

In view of the lack of motivation, the proposed combination made by the Examiner is improper under 35 U.S.C. § 103. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection.

With regard to claims 10 and 16, the same arguments apply.

In the event that there are any questions concerning this Response, or the application in general, the Examiner is respectfully urged to telephone the undersigned attorney so that prosecution of the application may be expedited.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: January 12, 2004

By: William C. Rowland
William C. Rowland
Registration No. 30,888

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620